

FORMALIZATION OF REVERSE LOGISTICS PROGRAMS: A THEORETICAL FRAMEWORK

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ABSTRACT

Purpose - The main goal of this paper is to propose a theoretical framework that helps firms to implement a formalization program to manage their returns. This research work proposes the theoretical framework that provides instructions for firms' formalization, with written rules and standard procedures, to better control their reverse logistics process.

Design/methodology/approach - The framework proposed covers all the stages in reverse logistics process, from return collection to sorting and treatment processes. The theoretical model is proposed according to existing studies and literature resources. Our approach focuses on theoretical and methodological considerations. We posit that formalized RL process will help firms to realize their goals by facilitating a more efficient flow of goods from the point of consumption to the point of origin.

Findings - Formalization would enable firms to profitably handle their reverse logistics operations, especially when returns involve a number of uncertainties such as increasing volume of returns, the unstable time, and different types/conditions of returned products. The framework proposed helps companies to formalize every single process and improve reverse logistics effectiveness.

Research limitations/implications - This paper is limited to theoretical and methodological considerations. As a future research, we suggest to focus on a quantitative empirical study that proposes relationships between the degree of process formalization and reverse logistics program performance.

Practical implications - Companies can effectively structure their reverse logistics activities following a formalization system based on the theoretical framework proposed in this paper.

Originality/value - An original theoretical framework to help companies formalize their reverse logistics programs is proposed in this paper. This is especially helpful when companies receive highest volume of returns.

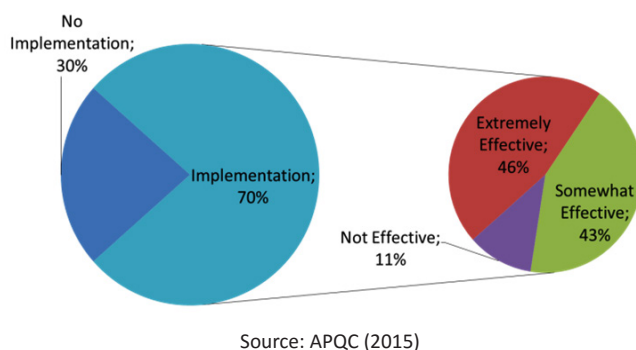
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1. INTRODUCTION

The ability to manage returns has become a critical success factor for many companies. The advance of e-commerce, liberal returns policies or more flexible returns policies, are increasing the volume of returns generated. Return rates vary widely by product category, by season, and across global markets (Guide *et al.*, 2006). For example, large traditional retailers, such as Home Depot, can have return rates of 10% of sales or even higher due to liberal returns policies (Guide *et al.*, 2009). In the fashion apparel industry, this rate could increase up to 35%. Returns percentages are also typically much higher for catalog sales and online sales (Guide *et al.*, 2006). Lack of formal policy and procedures reduce reverse logistics effectiveness (Rogers *et al.*, 2002), and formalization could help firms to improve their capabilities in managing reverse logistics flows. Therefore, the formalization of these procedures becomes a necessity for establishing a state-of-the-art reverse logistics (RL) process.

According to an investigation into open standards benchmarking in logistics conducted by the APQC (American Productivity and Quality Center), 70 percent of responding organizations have built returns management practices. Nearly one-third of respondents have no returns management process at all (see Figure 1). Most replying companies which deal with returns point out that their implementations are effective to some degree. However, 11 percent of respondents indicate that their returns operations are not effective (APQC, 2015). So the related question “What formal guidance can help organizations effectively manage returns processes?” becomes extremely crucial for both practitioners and academics alike.

Figure 1. Implementation and effectiveness of returns management practices



Formalized program contains a wide range of clearly defined accountability, standardization of processes and procedures, and sufficient knowledge to effectively implement the reverse practices (Huscroft, 2010) particularly as environmental, legal, and customer service requirements increase throughout the marketplace (Guide Jr, Souza *et al.* 2006. Nowadays with the overwhelming

trend of e-commerce, the rising in returned products has prompted many firms to endeavor to formalize their RL processes. For example, the average e-commerce return rates are between 20 to 30 percentages (Fabrikant, 2013). Having a formalized RL process supports companies to suitably respond customer expectations regarding returns (Huscroft *et al.*, 2013). Generally, formalization of reverse logistics can improve firm efficiency, because standardizing repetitive activities eliminate the need to treat every event as a new decision. The benefit is particularly obvious among companies, which fiercely compete on the basis of customer service in the modern marketplace (Cottrill, 2003; Merritt, 2001).

The beneficial impact of formalized returns is gaining a widespread recognition from academics and practitioners (Daugherty, 2011; Stock *et al.* Boyer, 2009; Sachan *et al.* Datta, 2005; Tibben-Lembke, 2002). The lack of formalized processes may restrain RL effectiveness. However, while returns volume may be hard to predict, and the components of a RL system, i.e., disposition decisions regarding returned goods may be difficult to determine. Thus reverse logistics would seem to be an ideal candidate for developing formalized programs (Autry, 2005).

The main goal of this paper is to propose a theoretical framework to help companies formalize their reverse logistics programs. This framework is especially needed when companies receive highest volume of returns, helping them to formalize every single process, from returns collection to sorting and treatment processes (Bernon *et al.*, 2011).

This paper is organized as follows: Section 2 includes the formalization concept, and the main characteristics, benefits and disadvantages of the RL formalization process; In Section 3 the theoretical framework proposed in this paper is developed; Section 4 outlines the relevant managerial implications; and finally, conclusions and future research lines are presented in Section 5.

2. LITERATURE REVIEW IN FORMALIZATION

More and more researchers are noticing the importance of formalization in reverse logistics, and the research contributions on this topic are increasing since 1985. Practitioner perspectives (Sachan *et al.* Datta, 2005; Stock *et al.* Boyer, 2009) and also relevant scientific researchers (Daugherty, 2011; Tibben-Lembke, 2002) point out that formalization is necessary for managing all aspects of the reverse logistics, including the returns activities and relevant services for customers (Genche *et al.*, 2011). The rise in commercial returns (exceeded \$100 billion annually in the United States) has prompted many companies to work to formalize their reverse logistics processes in recent years (Malone, 2004; Stock *et al.*, 2002).

2.1. Definition

The formalization term was first described by Pugh *et al.*, (1968) in page 75 as: “Formalization denotes the extent to which rules, procedures, instructions, and communications are written”.

According to Ruekert *et al.*, (1985) formalization focuses more on control mechanisms such as rules, processes, or procedures guide intra-firm or inter-firm operations. In addition Price *et al.*, (1980) also describe formalization as control mechanisms which take the form of written regulations or contractual obligations.

However, some other researchers highlight that formalization can be implemented with such tools as articulated and/or written policies, job descriptions and roles, organizational-responsibility charts, strategic and operational plans, objective setting systems, standardization of processes, and formalized communication systems, both intra and inter-firm *et al.*,2011; John *et* Martin, 1984; Robert Baum *et* Wally, 2003; Schwenk *et* Shrader, 1993).

Meilich (2005) gives a more concise definition where formalization refers to the agreed-upon written rules and procedures involved in certain organizational processes and related activities. Furthermore Genche *et al.*, (2011) almost give the same description of formalization as the agreed-upon written rules and procedures regarding a particular business operation.

Formalization becomes a primary characteristic of standard process system. While control differs from formalization is that control reveals the whole standard process system according to internal firm context. Level of formalization is indicative of how much control a given organization has over its returns management practices. Thus, the issue of control becomes associated with the formal development and implementation of written policies, rules, as well as procedures related to reverse logistics (Genche *et al.*,2011).

2.2. Overview of current research

Practitioners and academics have studied formalization from different aspects. Table 1 summarizes the main contributions covering formalization issues ranging from its characteristics to its benefits and disadvantages, which is based on the overview of the most relevant from the academic scientific papers in this relevant area.

Table 1. Main contributions of formalization process based on the literature review

| Content of Main Contributions | Literature |
|--|---|
| Benefits of Formalization | |
| Efficiency | Ruekert <i>et al.</i> , 1985; Walker <i>et</i> Ruekert, 1987; Bowersox <i>et</i> Daugherty, 1992; Bowersox <i>et al.</i> , 1992; Richey <i>et al.</i> , 2005; Autry, 2005 |
| Improve Service Level | Walsh <i>et</i> Dewar, 1987; Genche, 2007 |
| Better Control of Operations | Eisenhardt, 1985; Dahlstrom <i>et</i> Nygaard, 1999 |
| Reduce Ambiguity and Uncertainties | Davenport <i>et</i> Beers, 1995; Yeung, 2008 |
| Streamline RL Operations | Norek, 2002; Rogers <i>et</i> Tibben-Lembke, 1999; Aitken <i>et</i> Harrison, 2013 |
| Decrease Costs | Genchev <i>et al.</i> , 2011; Richey <i>et al.</i> , 2005a, 2005b; Sine <i>et al.</i> , 2006 |
| Disadvantages of Formalization | Eisenhardt, 1985 |
| Compare Benefits and Disadvantages | Bowersox <i>et al.</i> , 1992; Norek, 2002; Rogers <i>et</i> Tibben-Lembke, 1999 |
| Formalization Scales and Measurement Items | Ferrell <i>et</i> Skinner, 1988; Dahlstrom <i>et</i> Nygaard, 1999; Ayers <i>et al.</i> , 1997; Sohi <i>et al.</i> , 1996; Dahistrom <i>et al.</i> , 1996; Baum <i>et</i> Wally, 2003; Song <i>et</i> Parry, 1993 |
| Relationship between Formalization and Control | Papadakis <i>et al.</i> , 1998; Genchev <i>et al.</i> , 2011; Welker <i>et</i> Vries, 2005” |

Source: The authors own

Formalization measurement items, which exist as general formalization scales, served as the necessary sourcing component for specific reverse logistics process. We list these authors who studied such scales adapted to the reverse logistics context (Genche *et al.*,2011). For example, Baum *et* Wally (2003) use standard operating procedures (SOP) to deal with routine problems.

Formalization is starting to attract the attention of researchers because of its advantages to business. Main benefits for companies that adopt formalization are summarized in Table 2.

Table 2. Benefits of formalization in reverse logistics operations

| Benefits | Brief Description |
|----------------------------------|---|
| Efficiency | Formalization of internal operations increased the efficiency by the use of standards operating procedures and rules. External operations are also formalized (e.g. contracts with other actors) |
| Better Control of Operations | Formalization helps to monitoring the system and contribute to a better control |
| Streamlining RL operations | Formalization helps to rationalize and simplify the RL operations. |
| Reduce Ambiguity and Uncertainty | Formalization helps to know exactly the procedure to manage the returns flow, which contributes to reduce various uncertainties (relating to the RL program) and ambiguity |
| Decrease Costs | Formalization system provides instructions to customers specifying how to return their products, ways to be shipped, who pays for the shipping costs, and where to return merchandise. To have a clear process reduce time and cost along the process |
| Improve Service Level | Formalization simplifies complex business programs and helps companies to improve relationships with customers. |

Source: The authors own

Potential disadvantages of formalization could be: the reduction of operational flexibility, since it is mandatory to follow the procedures and the rules; inhibit innovation, since it is necessary to follow the process defined (Eisenhardt, 1985); and finally it could generate paperwork and a lot of administrative tasks.

Research on formalization in logistics contexts suggests that the benefits outweigh the potential drawbacks (Bowersox *et al.*, 1992). The same is true in reverse logistics: the potential of formalization to help managers “make order out of chaos” in returns is substantial (Norek, 2002) and can be a valuable tool in streamlining reverse logistics operations (Rogers *et Tibben-Lembke*, 1999).

3. THEORETICAL FRAMEWORK FOR REVERSE LOGISTICS FORMALIZATION

Scientific literature reviewed in Section 2 indicates that formalization is a necessary program for managing effectively all stages of reverse logistics including returns collection, sorting and treatment processes. In order to help firms better control their reverse logistics flows, we propose

a theoretical framework to formalize their reverse logistics process and operations. Figure 2 summarizes the theoretical framework for implementing a formalization process in reverse logistics. The framework proposed is a general framework that includes different types of returns (e.g. commercial returns, product recalls, warranty returns, end-of-use returns, end-of-life returns, and reusable articles) and different actors and companies involved in the collection process (e.g. third-party logistics operators, retailers, manufacturers, distributors, resellers).

We divide the whole reverse logistics processes into returns initiation (1), transporting returns to collection points (2), receiving returns at collecting points (3), inspecting and sorting them (4) and treating returns (in-house (6) or outsourcing (7)). In the returns treating facilities, there are two main operations: inspection/separation procedure (4) and re-processing procedure (5). Finally related activities also include (8) feeding back the customer/supplier and (9) measuring formalization performance of reverse logistics progress (see Figure 2) (Rogers *et al.*, 2002). According to formalization definition, every procedure is offered with detailed instructions, which serve as formalization tools for companies to follow.

Returns initiation, transporting returns generated to collection points, receiving returns at collecting points, inspection/separation procedure, re-processing procedure, feeding back the customer/supplier and measuring formalization performance are considered multidimensional processes (Rogers *et Tibben-Lembke*, 2001; Rogers *et al.*, 2002).

The formalization of reverse logistics processes can provide a solid structure for achieving substantially different capabilities and enhancing performance (Genche, 2007). The current research proposes that how to manage reverse logistics flows effectively needs a more strategic level with formalized rules at each stage of the returns procedures (Bernon *et al.*, 2011).

Following sections describe in detail the procedure and instructions proposed for each stage identified in this theoretical framework.

3.1. Formalization for return initiation

Return initiation is defined as the process where customers seek returns approvals from companies or send the returns directly to returns centers (Rogers *et al.*, 2002). Establishing and developing a formal return initiation process enhances returns visibility and helps firms become more responsive (Sciarrotta, 2003). The uncertain in the reverse logistics operation will be limited when returns activities are formalized. Figure 3 shows the formalization for this first stage in the reverse logistics process.

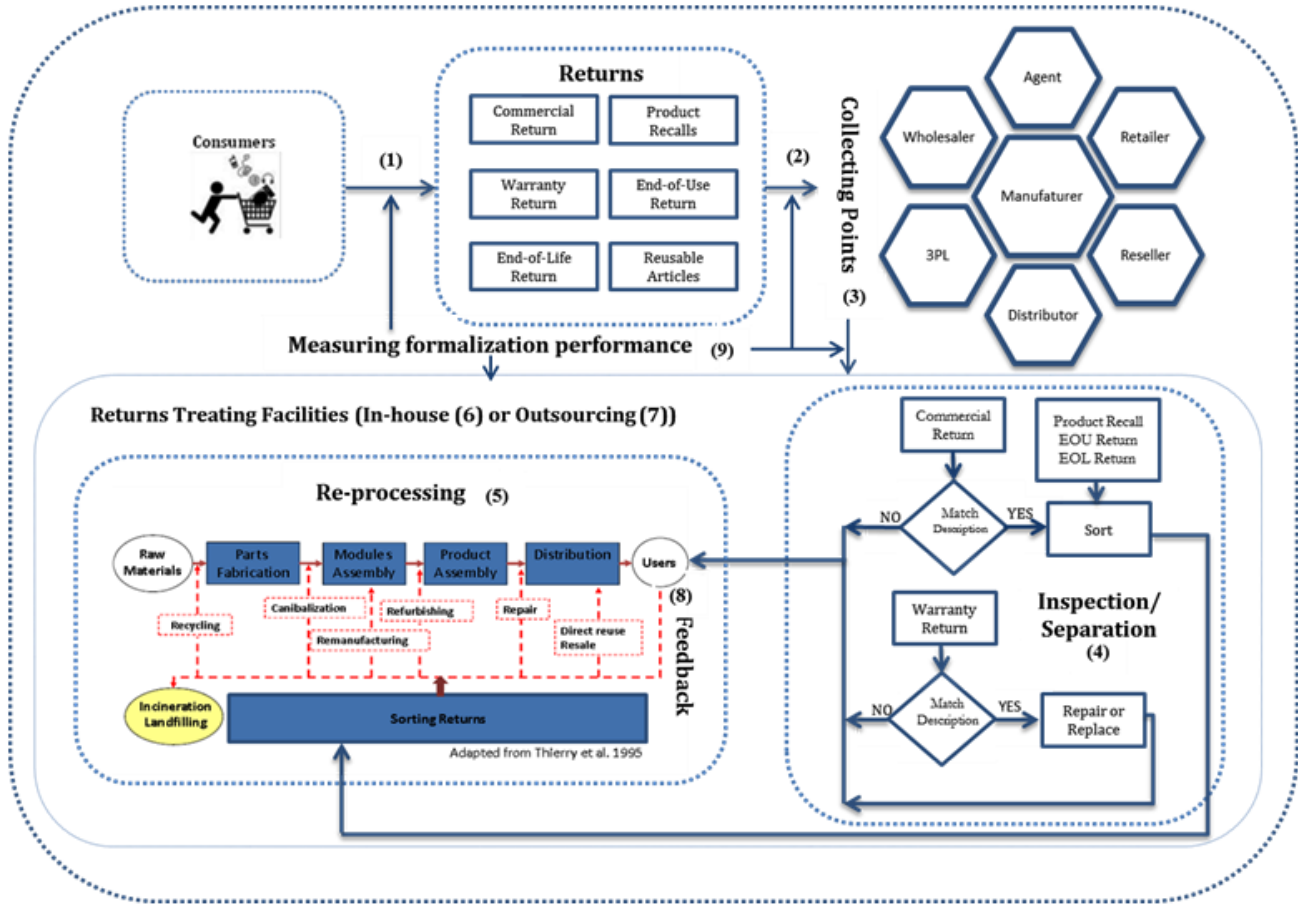


Figure 2. Theoretical framework for formalization in Reverse logistics
 Source: The authors own

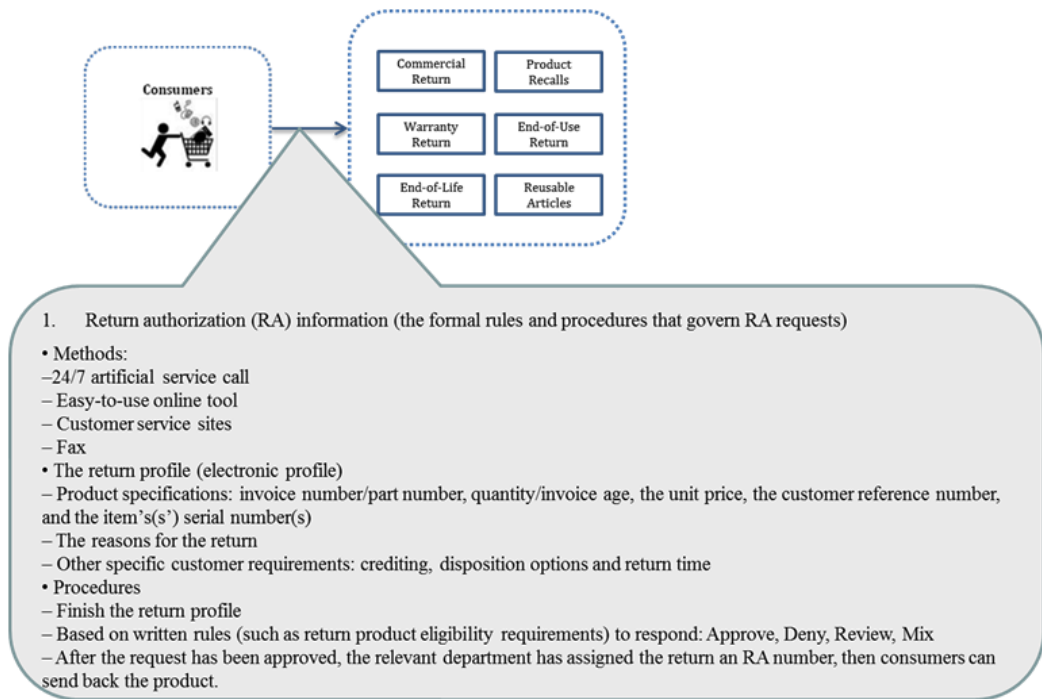


Figure 3. Formalization for return initiation
 Source: The authors own

A variety of communication options are available for customers initiating a return authorization (RA) request, i.e., 24/7 artificial service call, easy-to-use online tool, physical customer service sites and fax. Organizations should be familiar with customers' preferences. Then customers with request for returns should follow a formal procedure to fill electronic profiles. These electronic profiles generally comprise product specifications (invoice number, quantity, invoice date, the unit price, the customer reference number, and the product serial number) and the reasons for the return. Other specific customer requirements like crediting and disposition options are also registered. Besides firms should expand their abilities to afford customers with much more precise information about returns turnaround times. Consequently, a formal returns policy in terms of initiating returns should clearly identifies roles and responsibilities for both companies and customers (Genche, 2007).

3.2. Formalization for transporting returns

The second formalized stage of reverse logistics process refers to physical movement from points of consumption to returns collecting points. In a typical reverse channel, customers initiate the returned products and collection parties (manufacturers, retailers, wholesalers, distributors, agents, resellers and third-party logistics providers) receive

and pre-process the returns. In the second stage, accurate responsibilities should be authorized for transmitting the returned merchandises back following return assignation. Formal agreement among these institutions involved is necessary to streamline RL operations. Once formalized policy is in place, firms can concentrate on designing easy-to-use and clean-cut routing procedures. For example, companies can issue pre-printed transporting labels (i.e., SmartLabel) that specify the contracted carrier(s) and the exact destination for accepting the return goods. Firms can also assign specific routing regulations that contain location, timing, carrier selection requirements, the returns condition, etc., as a previous consensus discussed with business partners (See Figure 4 for the detailed sets). Compliance with formalization policy helps firms improve returns flow visibility and better transportation planning (Genche, 2007).

The second formalized procedure involved in reverse operations decides the form of transportation and destination of the returned merchandises (Rogers *et al.*, 2002). Formal shipping guidelines should be established for both external and internal participants. There are two potential options for customers to return their goods. The first routing option is the selling firm itself responding for shipping the returned product, and customers formally engage in the routing decision. Routing policies should clearly demonstrate that the choice of carriers can affect

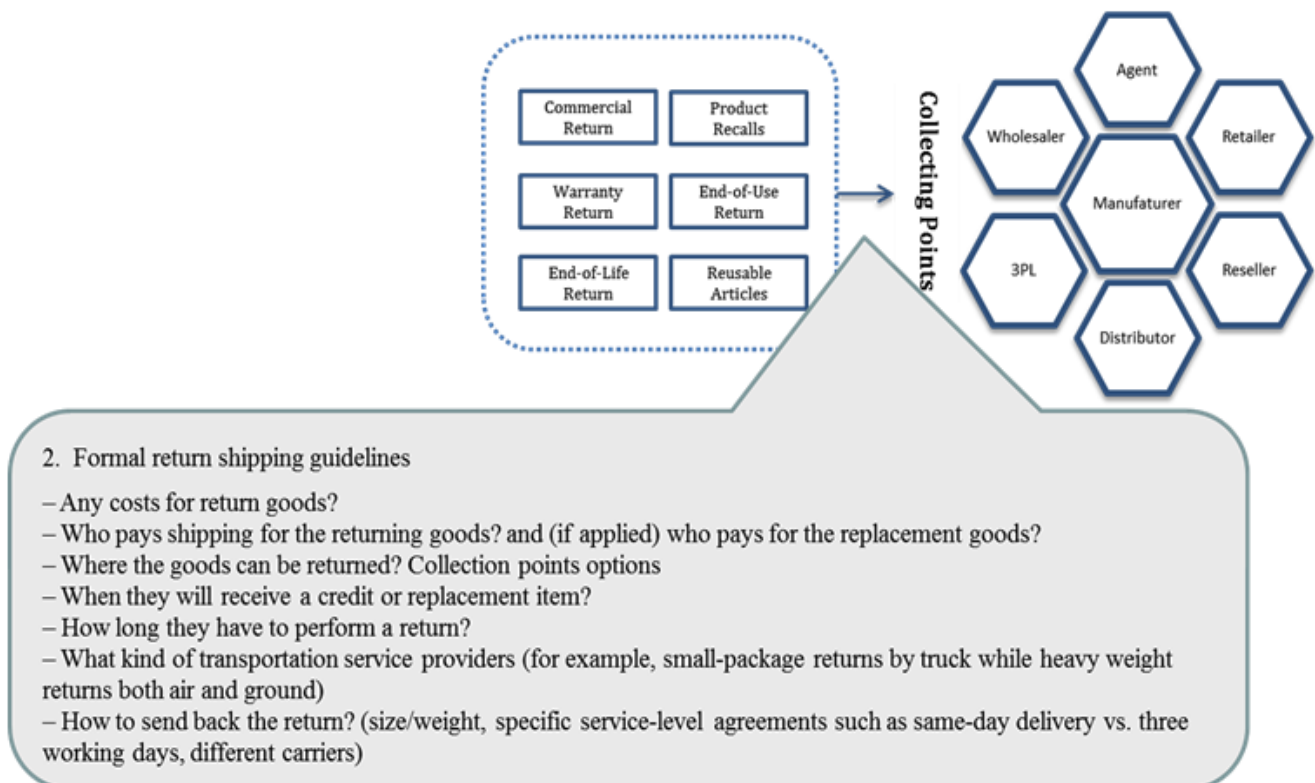


Figure 4. Formalization for transporting returns
 Source: The authors own

the time for returns processing and granting credit, as well as guide customers to compliance with the pre-determined procedure. Then a formal shipping schedule related to the return should be assigned to every customer. Because the massive array of routing possibilities can be confusing for customers unless formal guidance is afforded by the selling company. For instance, depending on the size or weight of the return as well as specific service level agreements (same day delivery versus three working days delivery), different carriers can be selected. DHL, for example, can deliver only small package returns for one to two working days while FedEx Freight specializes in heavy weight returns, both by air and ground. The second potential option is customers charging with responsibility for returning products back. Although the selling firm is not responsible for shipping freight, it should remain proactive in suggesting different options to costumers, as most of them may have little transportation expertise or experience. Selling companies should list specific attributions of diffident carriers with formalization guidance and communicate with customers in advance before transporting the returns (Genche, 2007).

3.3. Formalization for receiving returns

The third formalized procedures related to returns is quite challenging because of the large number of customer requirements and intra-firm processing rules. The formalization of these activities (see Figure 5 for the detailed sets of formalization) helps returns recipients reduce the level of complexity and streamlines returns processing.

When companies receive the returns, they must have well trained personnel and formal processes to quickly respond how to recover more value from returned products (Hazen *et al.*,2012; Skinner *et al.*, 2008). The level of formalization can impact costs, inventory levels, and returns processing time. In addition, there should be formal contracts (returns allowance, responsibilities, agreed negotiation rules, etc.) among these collecting participant organizations.

3.4. Formalization for inspecting/separating returns

Returns cover a number of unknowns such as volume of returns, the time, and type/condition of returned

3. Contracts between these collecting points
- Returns allowance
 - Logistical control
 - Different treatments on returns' conditions: factory sealed product, product damaged in transit, vendor quality defect, wrong product received, product recall, EOL return and EOU return
 - Agreed negotiation rules with customers (customers service-level agreements, consistent credit system)
 - Responsibilities

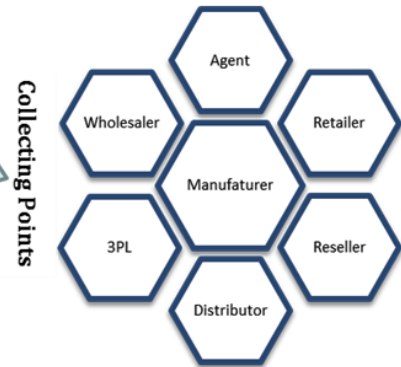


Figure 5. Formalization for receiving returns
 Source: The authors own

4. Formalized inspection/separation
- Commercial return and warranty call
 - If the physical condition of the product matches electronic profile about customer RA request, according to predetermined policy and individual service level agreements, inspector assigns a disposition code for the return. For warranty call, repair and replacing will be carried out, then send back consumers.
 - If not, according to official exceptions policy, inform consumers immediately with a detailed description of the problem, for the sake of proof explanatory photos may be added.
 - Product Recall, EOU Return and EOL Return
 - Enforced environmental legislation such as Extended Producer Responsibility (EPR) and WEEE Directive
 - Environmental Management Standard ISO 14000 / ISO 14001
 - Take-back obligations



Figure 6. Formalization for inspecting/separating returns
 Source: The authors own

product. A physical check of the returned products follows after receiving them. Inspection is necessary to verify whether customers' descriptions are in accord with the real physical conditions of the returns. Typically, the inspector has all the return-related information (electronic profile about customer RA request) from the customer service department. Consequently, the inspection refers to a step-by-step comparison between the electronic profile on the screen plus the accompanying documentation and the entity of returned product. Formalizing the verified procedure (see Figure 6 for the detailed sets of formalization) would help firms respond fast and appropriately with customers' requirements avoiding discrepancies (Genche, 2007).

With the advent of increased legislation, many businesses start to formalize their separation progress to comply with the license regulations. Legislation is mandatory for firms to accept these back after the end-of-life (EOL) or end-of-use (EOU). For instance, the Waste Electrical & Electronics Equipment directive encourages a set of criteria for collection, treatment and recovery of waste electrical and electronic equipment and makes producers responsible (WEEE, 2012). There has also been a restriction on the use of hazardous substances in the production processes, which facilitates the dismantling, and recycling of waste electronics (Ravi et al., 2005). A reverse logistics decision for the EOL computers should ensure that the end-of-life products are retired in a way that is compliant with existing legislation. The European Union (EU) directive on EOL vehicles requires automakers by 2006, to reuse or recycle 85% of an EOL automobile's weight and 95% by 2015 (Toffel, 2003).

3.5. Formalization for re-processing returns

This formalized procedure designates appropriate disposition options for the returned merchandises. There is a list of major disposition options: direct reuse (return to stock, resale and donate), repair, refurbishing, remanufacturing, cannibalization, recycling and incineration/landfilling. If returned goods cannot be redistributed as new, it may be

necessary to re-process them or outsource the re-processing operation to a third party. Donating the returns to charity may also be a plausible disposition alternative. Various options involved in choosing the appropriate disposition require careful formalization consideration. The trade-offs involved make this procedure one of the most complicated in returns formalization. Formalized approach (see Figure 7 for the detailed sets of formalization) enables reduce ambiguity and uncertainty, speed up the process, and obtain the maximum residual value (Genche, 2007).

The existence of so many disposition options requires formal analytical procedures. Assigning pre-disposition codes to processed returns helps firms make fast and accurate decisions for disposition options (Rogers et al., 2002). Formal cost-benefit analysis is also necessary when processed returns are on resale. Accompanying with e-commerce, many companies create and maintain a direct sales web-site for online re-selling operation. Formalized disposition options would enable profitably manage the returns (Genche, 2007). A detailed set of disposition rules can improve an organization's asset recovery and reduce its inventory, which in turn reduces inventory-carrying costs and labor costs associated with product storage (Partida, 2011).

3.6. Formalization for treating returns in-house

Having a formalized program may aide in the improvement of returns in-house systems. If employees know how the treating process is supposed to work, it would make employees work more efficiently. Therefore proper formalization rules can be used to ensure the reverse logistics process is executed appropriately by the employees in the process of treating returns in-house (Huscroft, 2010) particularly as environmental, legal, and customer service requirements increase throughout the marketplace (Guide Jr, Souza et al. 2006. We supply formalized instructions in details as below:

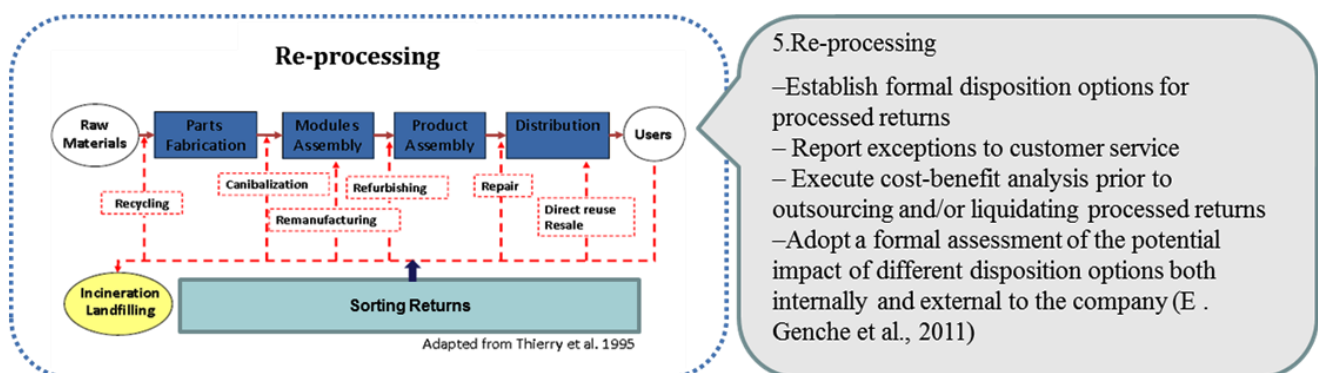


Figure 7. Formalization for re-processing returns

Source: Compiled from Thierry et al. (1995), Genche et al. (2011)

Table 3. Formalization for treating returns in-house

| Procedure | Formalization |
|-----------|---|
| In-house | <ul style="list-style-type: none"> – Formal work instructions – Sequence of information process activities – Information system for administrative order processing and production control – Job descriptions – Formalized hierarchical structure – Formalized consultative structure |

Source: The authors own

3.7. Formalization for treating returns outsourcing

Selecting disposition may refer to a decision to outsource (in addition to returns routing). Customer requirements, governmental regulations, and social responsibilities usually prompt firms to adopt authorized third-party logistics providers, which specialize in customized disposition. For instance, firms must be certified to handle electronic waste, and acquiring such certification can be extremely costly. Therefore companies may opt to outsource the returns treating procedure instead of incurring the expense (Genche *et al.*,2011). More details are shown in Table 4.

Table 4. Formalization for treating returns outsourcing

| Procedure | Formalization |
|--|---|
| Outsourcing (contracts with third party logistics providers) | <ul style="list-style-type: none"> – Aid the return process (scheduling the pickup and transportation) – Collect customer information – Track the status of returned items – Value added services – Waste handling |

Source: The authors own

We especially mention the third-party logistics (3PL). While recognizing the importance of reverse logistics, companies and especially e-businesses are increasingly outsourcing their reverse logistics efforts to 3PL providers. On the one hand, reverse logistics could be extremely complex and very important. On the other hand, many firms have limited resources. Outsourcing reverse logistics operation to 3PL is optimal choice for them (Cottrill, 2000; Krumwiede and Sheu, 2002).

3.8. Formalization for feeding back customer/supplier

This formalized procedure refers to the feedback to the buyer’s requirements including credit authorization and

potential claim settlements with customers (i.e. repairing). Because of customer satisfaction involved in this process, the returns policy and the service level agreements with individual customer play an important role (Rogers *et al.*, 2002).

Fast feedback is one of the highest priorities from customers’ perspectives. Taking charge-backs for example, no matter how efficient a reverse logistics program, the relationship can be compromised if customer don’t receive their money back promptly. Customers should be informed the needed time for resolving the issues, and possible compensation if deadlines are not met. Clear guidelines are necessary for handling charge-backs within the firm as well. Finance departments must keep pace with any customer’s requirements for deductions, discounts, or short-term credits against existing invoices (Genche, 2007).

If an exchanged product is sent back to the customer, it must be the same model or of equivalent quality, performance, and functionality. In the event that no such product exists, a monetary credit may be issued to the customer (Lambert *et al.*,2011).

If it is a warranty return, formal rules and procedures are established in terms of time and documentation requirements for repairing. Clear guidelines as to how long it will take for repairing should be developed and formally communicated to customers.

Keeping the customer informed can enhance customer relationships. Having a formalized feedback allows firms to properly manage customer expectations regarding returns (Autry, 2005; Genchev *et al.*,2011).

3.9. Measurement with performance metrics

A metric is defined as a measure of product or process performance (Hahn *et al.*,2008). Overseeing the reverse logistics operations requires the constant monitoring of the process. The tool that managers utilize is performance metrics; they track, monitor, and report the status and results of formalization in reverse logistics processes. For instance, does formalization reduce costs of returns? Does formalization enhance levels of customer satisfaction? Does formalization interact with incentive systems to bolster shareholder commitment (Huscroft *et al.*,2013)? The process of measuring returns formalization performance is aimed at improving reverse logistics quality and identifying potential problem areas. The following metrics were the most important reverse logistics indicators to measure formalization performance, which are used by Hall *et al.*, (2013) to state goals for organization’s inbound reverse logistics processes.

Table 5. Metrics for reverse logistics

| Components | Sets |
|------------|------------------------------------|
| Metrics | Customer satisfaction level |
| | Customer wait time |
| | Return cycle time |
| | Volume of returns |
| | Type/condition of returned product |
| | Cost of returns |
| | Return rates |
| | Return value |
| | Credit processing |

Source: Hall *et al.* (2013)

In-depth analysis of these metrics can help to identify problem areas. For example, if a particular customer is constantly abusing the returns policy, this will be apparent when volume of returns and percent of sales data are analyzed. The constant controlling feedback between returns formalization operations and pre-established performance metrics allows for continuous process and program improvement (Genche, 2007).

4. MANAGERIAL IMPLICATIONS

The more formalized reverse logistics processes become, the more performance gains (such as reduced inventory investment or increased profitability) yield by returns handling capabilities. We provide implications for managerial practices to the efficient and effective of formalization.

First, one of the most difficult tasks regarding returns management is to develop awareness among senior managers of the importance of formalized reverse logistics, and obtain support from them with additional support by cross-functional teams. Managers should come to realize that formalized handling of reverse logistics could bring social and economic benefits. Furthermore, managers should request feedback from both employees and customers to assess the viability of the policies from a practical standpoint, and should insure that reverse logistics policies are consistent with firm strategic goals (Autry, 2005).

Secondly, responsibilities are set for returns policy and returned programs (initiating returns, transporting returned products, receiving returns at collecting points and treating returned merchandises, accounting, sales, finance, marketing), in order to increase the efficiency and effectiveness of formalization in reverse logistics (Genche, 2009). The organizations should place ultimate accountability for returns management at the field level.

Besides, the organizations should also have full-time employees responsible for reverse logistics (Partida, 2011).

Finally, to develop formal written policies and procedures, relatively moderate investment is required in terms of time and resources. Several potential investment parts need practitioners to explore such as internal and global transparency, flexibility in changing controls, reducing complexity, widespread process control and collaborating with supply chain partners.

5. CONCLUSIONS AND FUTURE RESEARCH

The theoretical framework proposed in this paper maps out the reverse logistics program, and identifies the different procedures directly or indirectly involved in returns management. Simultaneously, written rules and standard procedures are provided to guide execution from the whole reverse logistics process (i.e. return generation, receiving and inspection/separation, and re-processing the returns). Companies and actors involved (manufacturers, retailers, wholesalers, distributors, agents, resellers and third-party logistics providers) can set up or improve their own formalization system based on the theoretical structure proposed. By pinpointing the corresponding rules to each procedure, the framework motivates relevant customers to actively participate in reverse logistics as formalization affords a better communication platform. Also the theoretical framework articulating characteristics of reverse logistics system itself, may contribute to enable academics to develop better formalization frameworks.

The theoretical model is proposed according to existing studies and literature resources, which is limited to just theoretical and methodological considerations. We posit that formalized RL process will help firms to accomplish their goals by facilitating a more efficient flow of goods from the point of consumption to the point of origin. Therefore we encourage additional research aimed at helping firms to formalize their RL operations (Hall *et al.*, 2013) few research efforts have examined appropriate metrics for reverse logistics (RL). A qualitative investigative technique is needed to extend understanding regarding the relationship between formalization and reverse logistics program performance at the executive level.

Future research in reverse logistics needs to focus on a quantitative empirical study that proposed relationships between the degree of process formalization and reverse logistics program performance. Another interesting possibility for enhancing generalizability is to develop a perceptual instrument for measuring the degree of process formalization (Genche, 2007).

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